

In the Claims

The following Listing of Claims replaces all prior versions in the application:

LISTING OF CLAIMS

1. (Previously presented) An enhancer for increasing the dynamic range of a receiver that detects a signal, the receiver having an antenna port for coupling to an antenna through which an RF signal including a carrier frequency is received, the enhancer comprising:
a downconverter for downconverting the received signal to an intermediate frequency of the receiver, the downconverter having one or more active stages configured such that signal amplitudes at which said one or more active stages become non-linear are increased relative to corresponding active stages in the receiver; and
a coupler attachable to the antenna port for sending the downconverted signal to the receiver by way of the antenna port;
wherein the downconverter and the enhancer increase the dynamic range of the receiver.
2. (Original) The enhancer of Claim 1 further including at least one filter operative to exclude strong signals.
3. (Original) The enhancer of Claim 1 wherein the downconverter comprises:
a local oscillator operative to generate a local oscillator signal; and
a mixer operative to mix the received signal with the local oscillator signal in order to downconvert the received signal.
4. (Original) The enhancer of Claim 3 wherein the receiver comprises an antenna port and the coupler is operative to couple the downconverted signal to the antenna port of the receiver.
5. (Original) The enhancer of Claim 3 wherein the mixer is operative to downconvert the received signal to the intermediate frequency of the receiver.

6. (Original) The enhancer of Claim 5 wherein the local oscillator is synchronized to the receiver.
7. (Original) The enhancer of Claim 6 further comprising a phase lock loop electrically connected to the local oscillator and the receiver in order to synchronize the local oscillator.
8. (Original) The enhancer of Claim 7 further comprising a serial buffer electrically connected to the phase lock loop and the receiver in order to synchronize the local oscillator.
9. (Original) The enhancer of Claim 3 wherein the coupler is a coaxial line operative to couple the enhancer to the receiver.
10. (Original) The enhancer of Claim 9 further comprising:
 - an antenna for detecting the received signal; and
 - a duplexer electrically connected to the coupler and the antenna,the duplexer operative to transmit and receive signals to and from the coupler.
11. (Previously presented) An add-on enhancer to increase the dynamic range of a receiver having an antenna port for coupling to an antenna through which an RF signal including a carrier frequency is received, the enhancer comprising:
 - a downconverter for downconverting a received signal to an intermediate frequency of the receiver, the downconverter having one or more active stages configured such that signal amplitudes at which said one or more active stages become non-linear are increased relative to corresponding active stages in the receiver; and
 - an attachable coupling line for sending signals from the downconverter to the receiver by way of the antenna port;wherein the dynamic range of the enhancer is greater than the dynamic range of the receiver.

12. (Original) The add-on enhancer of Claim 11 further comprising at least one filter operative to exclude strong signals.
13. (Original) The add-on enhancer of Claim 11 wherein the downconverter comprises a mixer and a local oscillator operative to downconvert the received signal to the intermediate frequency of the receiver.
14. (Original) The add-on enhancer of Claim 13 wherein the local oscillator is synchronized to the receiver.
15. (Original) The add-on enhancer of Claim 14 further comprising a control signal from the receiver to the local oscillator in order to synchronize the local oscillator to the receiver.
16. (Original) The add-on enhancer of Claim 15 further comprising a phase lock loop in electrical communication with local oscillator and the control signal in order to facilitate synchronization.
17. (Original) The add-on enhancer of Claim 13 further comprising a diplexer in electrical communication with the downconverter and the coupling liner
18. (Original) The add-on enhancer of Claim 17 further comprising an antenna in electrical communication with the downconverter and operative to detect the received signal.
19. (Original) The add-on enhancer of Claim 18 further comprising a duplexer in electrical communication with the antenna and the diplexer, the duplexer being operative to transmit and receive signals with the antenna.
20. (Original) The add-on enhancer of Claim 19 wherein the diplexer and the diplexer are operative to send and receive signals between the antenna of the add-on enhancer and the antenna port of the receiver.

21. (Previously presented) A method of increasing the dynamic range of a receiver having an antenna port with an enhancer, the antenna port being couplable to an antenna for receiving an RF signal including a carrier frequency, the method comprising the steps of:
- a) receiving a signal with an antenna of the enhancer;
 - b) downconverting the received signal to an intermediate frequency of the receiver, said downconverting including using one or more active stages configured such that signal amplitudes at which said one or more active stages become non-linear are increased relative to corresponding active stages in the receiver; and
 - c) attachably coupling the downconverted signal to the antenna port of the receiver.
22. (Original) The method of Claim 21 further comprising the step of filtering the received signal in order to exclude strong signals.
23. (Original) The method of Claim 21 wherein step (b) comprises missing the signal in order to downconvert the signal.
24. (Original) The method of Claim 23 wherein step (b) comprises mixing the signal with a local oscillator signal.
25. (Original) The method of Claim 24 further comprising the step of synchronizing the local oscillator signal with the receiver.
26. (Original) The method of Claim 25 further comprising the step of synchronizing the local oscillator signal via a control signal from the receiver.
27. (Original) The method of Claim 26 wherein step (c) comprises coupling the downconverted signal with a coaxial line in electrical communication with the antenna port of the receiver.

28. (Previously presented) An enhancer for increasing the dynamic range of a receiver having an antenna port for coupling to an antenna through which an RF signal including a carrier frequency is received, the enhancer comprising:

downconversion means for downconverting a signal detected by an antenna of the enhancer, the downconversion means having one or more active stage means configured such that signal amplitudes at which said one or more active stage means become non-linear are increased relative to corresponding active stage means in the receiver; and

coupling means for attachably coupling the enhancer to the antenna port of the receiver and sending the downconverted received signal to the receiver.

29. (Previously presented) An enhancer for increasing the dynamic range of a receiver having an antenna port for coupling to an antenna through which an RF signals including a carrier frequency is received, the enhancer comprising:

an antenna for receiving a signal;

a mixer in electrical communication with the antenna and a local oscillator signal; the mixer being operative to downconvert the received signal to an intermediate frequency of the receiver and being configured such that signal amplitudes at which the mixer becomes non-linear are increased relative to a corresponding mixer in the receiver; and

a an attachable coupler in electrical communication with the mixer and the antenna port of the receiver, the coupler being operative to transmit the downconverted received signal to the receiver.

30. (Original) The enhancer of Claim 29 further comprising:

a duplexer in electrical communication with the antenna and the mixer; and

a diplexer in electrical communication with the duplexer, the mixer and the antenna port of the receiver;

wherein the duplexer and the diplexer are operative to send a receive signal between the antenna and the antenna port of the receiver.

31. (Original) The enhancer of Claim 30 further comprising a local oscillator in electrical communication with the mixer the local oscillator being operative to provide a local oscillator signal to the mixer to be downconverted with the received signal

32. (Original) The enhancer of Claim 31 further comprising a phase lock loop in electrical communication with the local oscillator and the receiver, the phase lock loop being operative to synchronize the local oscillation signal with the receiver.

33. (Previously presented) The enhancer of Claim 1, wherein the downconverted signal is applied to the receiver by way of IF blowthrough without conversion to a carrier frequency.

34. (Previously presented) The add-on enhancer of Claim 11, wherein the downconverted signal is applied to the receiver by way of IF blowthrough without conversion to a carrier frequency.

35. (Previously presented) The method of Claim 21, wherein the downconverted signal is applied to the receiver by way of IF blowthrough without conversion to a carrier frequency.

36. (Previously presented) The enhancer of Claim 28, wherein the downconverted signal is applied to the receiver by way of IF blowthrough without conversion to a carrier frequency.

37. (Previously presented) The enhancer of Claim 29, wherein the downconverted signal is applied to the receiver by way of IF blowthrough without conversion to a carrier frequency.